

# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: TCA1321AF133GAC010

Catalog No: TCA1321AF133GAC010

TerraMAX® Cast Iron Motor, 175 HP, 3 Ph, 50 Hz, 380 V, 3000 RPM, 315M Frame, TEFC



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**RegalRexnord**

### Nameplate Specifications

|                        |               |                            |                             |
|------------------------|---------------|----------------------------|-----------------------------|
| Output HP              | 175 Hp        | Output KW                  | 132.0 kW                    |
| Frequency              | 50 Hz         | Voltage                    | 380 V                       |
| Current                | 236.2 A       | Speed                      | 2984 rpm                    |
| Service Factor         | 1             | Phase                      | 3                           |
| Efficiency             | 95.4 %        | Power Factor               | 0.89                        |
| Duty                   | S1            | Insulation Class           | F                           |
| Frame                  | 315M          | Enclosure                  | Totally Enclosed Fan Cooled |
| Thermal Protection     | No Protection | Ambient Temperature        | 40 °C                       |
| Drive End Bearing Size | 6316          | Opp Drive End Bearing Size | 6316                        |
| UL                     | No            | CSA                        | No                          |
| CE                     | Yes           | IP Code                    | 55                          |
| Number of Speeds       | 1             | Efficiency Class           | IE3                         |

### Technical Specifications

|                       |               |                       |                |
|-----------------------|---------------|-----------------------|----------------|
| Electrical Type       | Squirrel Cage | Starting Method       | Direct On Line |
| Poles                 | 2             | Rotation              | Bi-Directional |
| Mounting              | B35           | Motor Orientation     | Horizontal     |
| Drive End Bearing     | C3            | Opp Drive End Bearing | C3             |
| Frame Material        | Cast Iron     | Shaft Type            | Keyed          |
| Overall Length        | 1176 mm       | Frame Length          | 729 mm         |
| Shaft Diameter        | 65 mm         | Shaft Extension       | 140 mm         |
| Assembly/Box Mounting | R Side        |                       |                |
| Connection Drawing    | 8442000085    | Outline Drawing       | 0231501397     |

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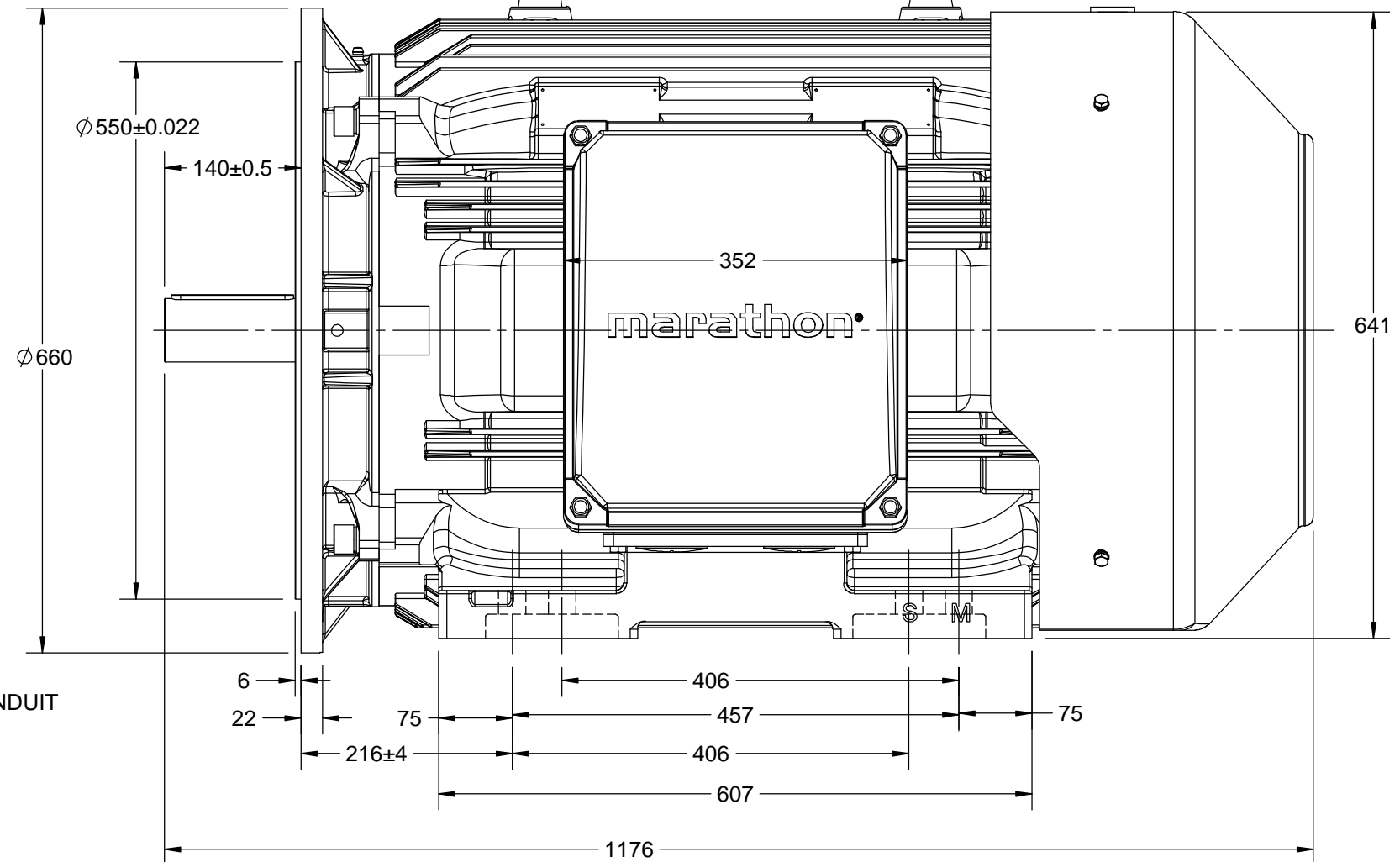
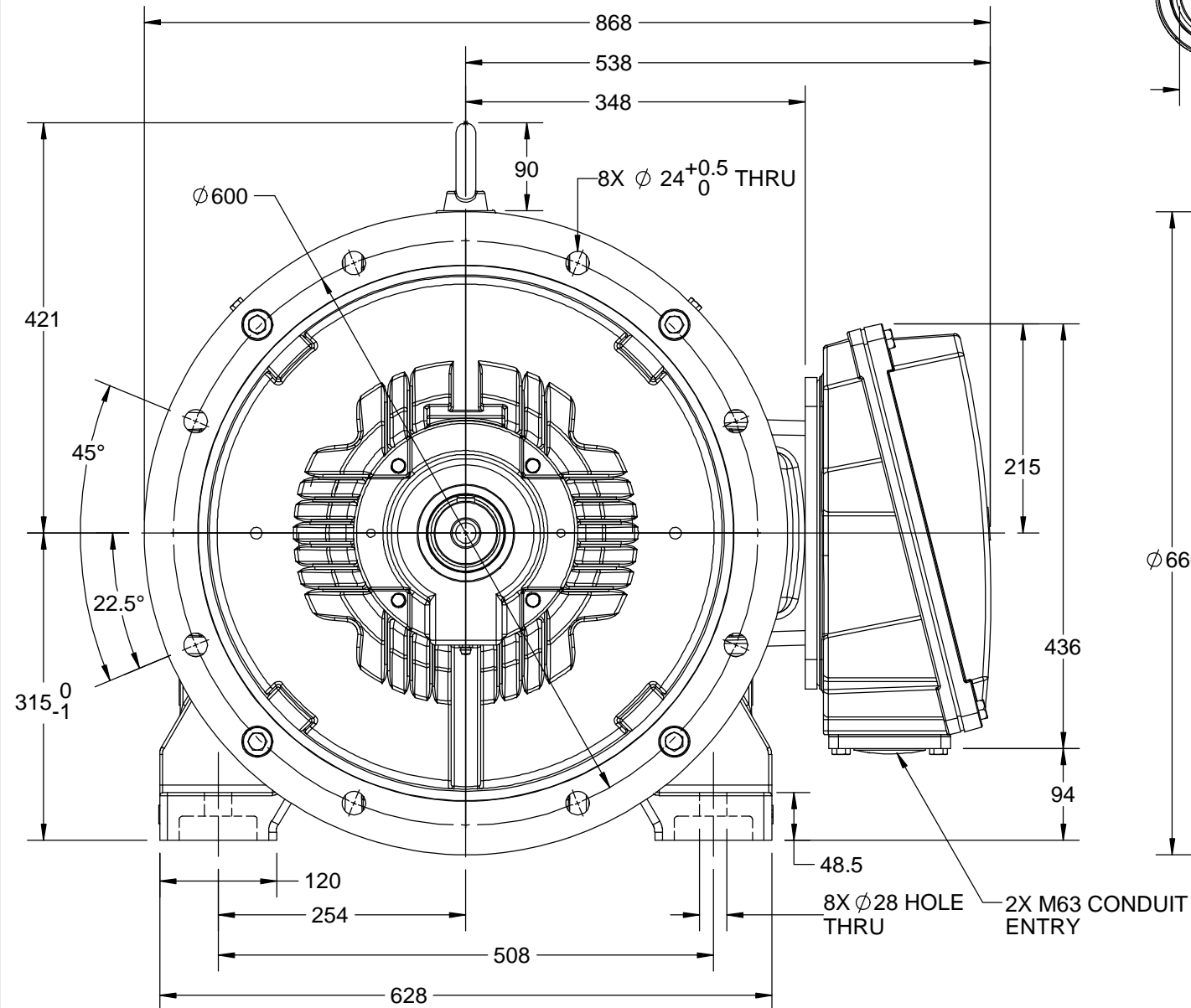
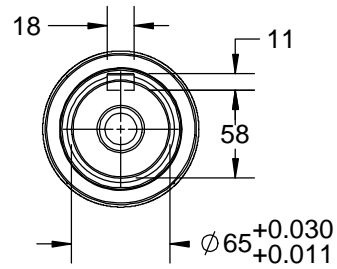
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B

B

A

A



|  |                    |                    |
|--|--------------------|--------------------|
| DRAWING REVISION<br>B  | REVISION BY<br>VS  | DATE<br>11/07/2018 |
| ECO<br>ECO-0148344   | APPROVED BY<br>SBD | DATE<br>11/07/2017 |
| ECO DESCRIPTION<br>MODEL UPDATED   |                    |                    |
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|                           |                                   |                              |                 |
|---------------------------|-----------------------------------|------------------------------|-----------------|
| DRAWN BY<br>GSR           | <b>marathon™</b><br>Motors        |                              |                 |
| DATE<br>11/15/2017        |                                   |                              |                 |
| APPROVED BY<br>JAY        | DESCRIPTION<br>OUTLINE            |                              |                 |
| DATE<br>11/15/2017        | 315S/M-2P-B35 MTG. TCA/QCA-RHS TB |                              |                 |
| REFERENCE                 | MATERIAL                          | PROCESS/FINISH               |                 |
| THIRD ANGLE<br>PROJECTION | SIZE<br>B                         | DRAWING NUMBER<br>0231501397 | SHEET<br>1 OF 1 |

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|  |                    |                    |
|--|--------------------|--------------------|
| DRAWING REVISION<br>A                  | REVISION BY<br>SN  | DATE<br>13/01/2017 |
| ECO<br>ECO-0116390                     | APPROVED BY<br>SBD | DATE<br>13/01/2017 |
| ECO DESCRIPTION<br>NEW DRAWING RELEASE |                    |                    |

| GEOMETRIC TOLERANCE |         |      |
|---------------------|---------|------|
| LINEAR DIM          | >0~6    | ±0.1 |
|                     | >6~30   | ±0.2 |
|                     | >30~120 | ±0.3 |



NOTES:

1. PRESSURE-SENSITIVE ADHESIVE COATED PAPER ON THE BACK OF SELF-ADHESIVE.
2. AT THE END OF YELLOW, WORDS, SYMBOLS, LETTERS ARE BLACK, BORDER IS BLACK.
3. THE TOLERANCE OF THE LINEAR SIZE OF THE TOLERANCE WITHOUT THE TOLERANCE BY THE TABLE.

8WD.442.2017

|  |                        |  |  |                              |                |                 |
|--|------------------------|--|--|------------------------------|----------------|-----------------|
|  | DRAWN BY<br>SN         |  | Regal Beloit America, Inc.                   |                              |                |                 |
|  | DATE<br>16/12/2016     |  |  |                              |                |                 |
|  | APPROVED BY<br>SBD     |  | DESCRIPTION<br><b>CONN DIAGRAM-NAMEPLATE</b> |                              |                |                 |
|  | DATE<br>16/12/2016     |  |  |                              |                |                 |
|  | REFERENCE              |  | MATERIAL                                     |                              | PROCESS/FINISH |                 |
|  | THIRD ANGLE PROJECTION |  | SIZE<br>A                                    | DRAWING NUMBER<br>8442000085 |                | SHEET<br>1 OF 1 |

**Model No.** TCA1321AF133GAC010

| U<br>(V) | Δ / Y<br>Conn | f<br>[Hz] | P<br>[kW] | P<br>[hp] | I<br>[A] | n<br>[RPM] | T<br>[Nm] | IE<br>Class | % EFF at __ load |    |       |       | PF at __ load |       |       | I <sub>A</sub> /I <sub>N</sub><br>[pu] | T <sub>A</sub> /T <sub>N</sub><br>[pu] | T <sub>K</sub> /T <sub>N</sub><br>[pu] |
|----------|---------------|-----------|-----------|-----------|----------|------------|-----------|-------------|------------------|----|-------|-------|---------------|-------|-------|--|--|--|
| 380      | Δ             | 50        | 132       | 175       | 236.21   | 2984       | 417.66    | IE3         | 5/4FL            | FL | 3/4FL | 1/2FL | FL            | 3/4FL | 1/2FL | 7.4                                    | 2.2                                    | 3.7                                    |
|          |               |           |           |           |          |            |           |             |                  |    |       |       |               |       |       |  |  |  |

|                                  |                             |   |   |
|----------------------------------|-----------------------------|---|---|
| Motor type                       | TCA                         | Degree of protection                      | IP 55                                       |
| Enclosure                        | TEFC                        | Mounting type                             | IM B35                                      |
| Frame Material                   | Cast Iron                   | Cooling method                            | IC 411                                      |
| Frame size                       | 315M                        | Motor weight - approx.                    | 1048 kg                                     |
| Duty                             | S1                          | Gross weight - approx.                    | 1093 kg                                     |
| Voltage variation *              | ± 10%                       | Motor inertia                             | 2.4236 kgm <sup>2</sup>                     |
| Frequency variation *            | ± 5%                        | Load inertia                              | Customer to Provide                         |
| Combined variation *             | 10%                         | Vibration level                           | 2.8 mm/s                                    |
| Design                           | N                           | Noise level ( 1meter distance from motor) | 83 dB(A)                                    |
| Service factor                   | 1.0                         | No. of starts hot/cold/Equally spread     | 2/3/4                                       |
| Insulation class                 | F                           | Starting method                           | DOL   |
| Ambient temperature              | -20 to +40 °C               | Type of coupling                          | Direct                                      |
| Temperature rise (by resistance) | 80 [ Class B ] K            | LR withstand time (hot/cold)              | 15/30 s                                     |
| Altitude above sea level         | 1000 meter                  | Direction of rotation                     | Bi-directional                              |
| Hazardous area classification    | NA                          | Standard rotation                         | Clockwise form DE                           |
| Zone classification              | NA                          | Paint shade                               | RAL 5014                                    |
| Gas group                        | NA                          | Accessories                               |   |
| Temperature class                | NA                          | Accessory - 1                             | PTC 150°C                                   |
| Rotor type                       | Aluminum Die cast           | Accessory - 2                             | -   |
| Bearing type                     | Anti-friction ball          | Accessory - 3                             | -   |
| DE / NDE bearing                 | 6316 C3 / 6316 C3           | Terminal box position                     | RHS   |
| Lubrication method               | Regreasable                 | Maximum cable size/conduit size           | 1R x 3C x 240mm <sup>2</sup> /2 x M63 x 1.5 |
| Type of grease                   | CHEVRON SRI-2 or Equivalent | Auxiliary terminal box                    | NA  |

 $I_A/I_N$  - Locked Rotor Current / Rated Current

 $T_K/T_N$  - Breakdown Torque / Rated Torque

 $T_A/T_N$  - Locked Rotor Torque / Rated Torque

**NOTE**

All performance values at rated voltage and frequency.

All performance parameters are subjected to standard tolerance as per IEC 60034-1

\* Voltage, Frequency and combine variation are as per IEC60034-1

Technical data are subject to change. There may be discrepancies between calculated and name plate values.

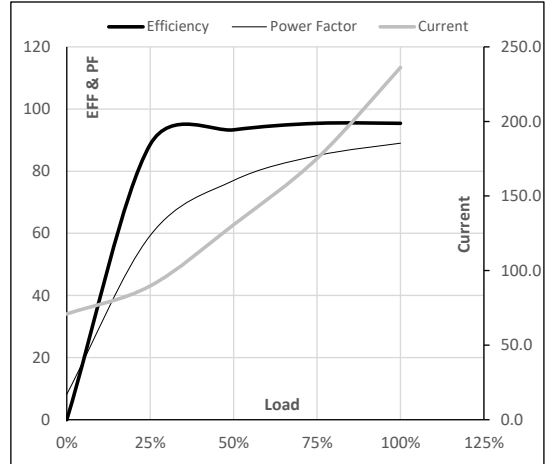
| Efficiency | Europe | China                 | India | Aus/Nz | Brazil | Global IEC    |
|------------|--------|-----------------------|-------|--------|--------|---------------|
| Standards  | -      | GB 18613-2012 Grade 2 | -     | -      | -      | IEC: 60034-30 |

**Model No.** TCA1321AF133GAC010

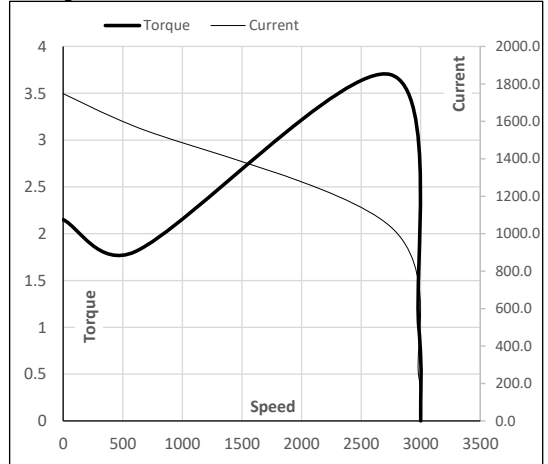
| Enclosure | U<br>(V) | $\Delta$ / Y<br>Conn | f<br>[Hz] | P<br>[kW] | P<br>[hp] | I<br>[A] | n<br>[RPM] | T<br>[kgm] | T<br>[Nm] | IE<br>Class | Amb<br>[°C] | Duty | Elevation<br>[m] | Inertia<br>[kg-m <sup>2</sup> ] | Weight<br>[kg] |
|-----------|----------|----------------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| TEFC      | 380      | $\Delta$             | 50        | 132       | 175       | 236.2    | 2984       | 42.59      | 417.66    | IE3         | 40          | S1   | 1000             | 2.4236                          | 1048           |

**Motor Load Data**

| Load Point   |       | NL   | 1/4FL | 1/2FL | 3/4FL | FL    | 5/4FL |
|--------------|-------|------|-------|-------|-------|-------|-------|
| Current      | A     | 70.9 | 89.7  | 130.8 | 175.2 | 236.2 |       |
| Torque       | Nm    | 0.0  | 104.0 | 208.3 | 312.8 | 417.7 |       |
| Speed        | r/min | 3000 | 2996  | 2992  | 2988  | 2984  |       |
| Efficiency   | %     | 0.0  | 88.6  | 93.3  | 95.4  |       |       |
| Power Factor | %     | 8.2  | 59.3  | 77.0  | 85.0  | 89.0  |       |

**Performance vs Load Chart**

**Motor Speed Torque Data**

| Load Point |       | LR     | P-Up   | BD     | Rated | NL   |
|------------|-------|--------|--------|--------|-------|------|
| Speed      | r/min | 0      | 600    | 2745   | 2984  | 3000 |
| Current    | A     | 1747.9 | 1573.1 | 1038.4 | 236.2 | 70.9 |
| Torque     | pu    | 2.2    | 1.8    | 3.7    | 1     | 0    |

**Starting Characteristics Chart**

**NOTE** Refer data sheet for applicable standard and tolerances on performance parameters

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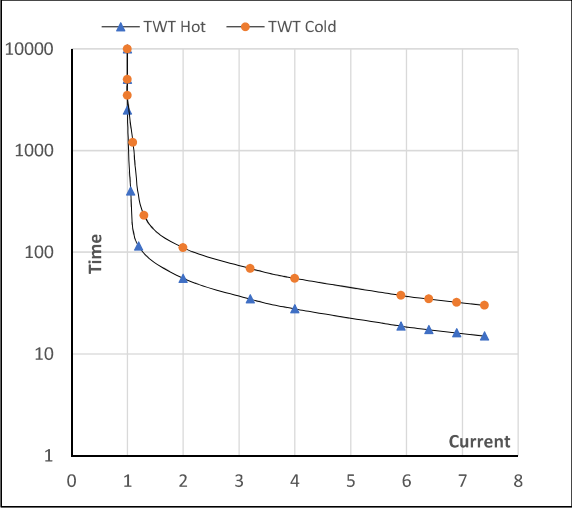
Model No. TCA1321AF133GAC010

| Enclosure | U<br>(V) | Δ / Y<br>Conn | f<br>[Hz] | P<br>[kW] | P<br>[hp] | I<br>[A] | n<br>[rpm] | T<br>[kgm] | T<br>[Nm] | IE<br>Class | Amb<br>[°C] | Duty | Elevation<br>[m] | Inertia<br>[kg-m <sup>2</sup> ] | Weight<br>[kg] |
|-----------|----------|---------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| TEFC      | 380      | Δ             | 50        | 132       | 175.0     | 236.2    | 2984       | 42.59      | 417.66    | IE3         | 40          | S1   | 1000             | 2.4236                          | 1048           |

Motor Speed Torque Data

| Load     | FL      | I <sub>1</sub> | I <sub>2</sub> | I <sub>3</sub> | I <sub>4</sub> | I <sub>5</sub> | LR  |
|----------|---------|----------------|----------------|----------------|----------------|----------------|-----|
| TWT Hot  | s 10000 | 56             | 39             | 28             | 24             | 22             | 15  |
| TWT Cold | s 10000 | 111            | 80             | 56             | 50             | 40             | 30  |
| Current  | pu 1    | 2              | 3              | 4              | 5              | 5.5            | 7.3 |

Thermal Characteristics Chart



NOTE Refer data sheet for applicable standard and tolerances on performance parameters

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